Modern Precision Radiotherapy - New Research in Technology

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How is cancer cured?

- Surgery: 49%
- Radiotherapy: 40%
- Chemotherapy: 11%

Professor Sir Mike Richards, NCRI 2011
1896- 2007

**Leeds Cancer Centre**
- Highly specialised teams
- One of the largest cancer centres in Europe
- High specification radiotherapy equipment
- Short radiotherapy waiting times
- Radiotherapy research culture
- Radiotherapy research culture
2008-
Any sufficiently advanced technology is indistinguishable from magic.

Arthur C Clarke
Conventional radiotherapy parallel opposed fields

IMRT – Reducing the dose to the parotid gland in tonsil cancer

Nutting et al Lancet Oncology

Leeds Institute of Cancer and Pathology
Radiation Therapeutics

Slides from Professor Chris Nutting
IMRT sparing left parotid
Moderate to Severe Dry Mouth

% ≥G2 (Exact 95% CI)

3 months 6 months 12 months 18 months 24 months
n= 40 n= 36 n= 35 n= 24 n= 24
n= 45 n= 45 n= 39 n= 35 n= 31

Time post radiotherapy

CRT IMRT

Slides from Professor Chris Nutting

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Radiation Therapeutics

CANCER RESEARCH UK
3 months 6 months 12 months 18 months 24 months

**CRT IMRT**

**Time post radiotherapy**

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Example – Stage I NSCLC

Surgery standard treatment

“Standard” RT treatment
- 50-64Gy in 25-32 F
- 30-40% local control

SABR
- 54Gy/3F – 60Gy in 8F
- 90% local control
control
Video of SABR VMAT treatment delivery